



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE

United States Patent and Trademark Office

Address: COMMISSIONER FOR PATENTS

P.O. Box 1450

Alexandria, Virginia 22313-1450

www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|--|-------------|----------------------|---------------------|------------------|
| 10/608,790 | 06/27/2003 | Alan Michael Jaffee | 7302 | 6842 |
| 7590 JOHNS MANVILLE Legal Department 10100 West Ute Avenue Littleton, CO 80127 | | | | |
| EXAMINER | | | | |
| STEELE, JENNIFER A | | | | |
| ART UNIT | | PAPER NUMBER | | |
| 1794 | | | | |
| MAIL DATE | | DELIVERY MODE | | |
| 12/29/2009 | | PAPER | | |

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/608,790

Applicant(s)

JAFEE, ALAN MICHAEL

Examiner

JENNIFER STEELE

Art Unit

1794

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 July 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3, 5, 7, 9 and 11-34 is/are pending in the application.
- 4a) Of the above claim(s) 30 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3, 5, 7, 9, 11-29 and 31-34 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/06)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

Affidavit/Declaration

1. Applicant noted that the Declaration submitted 12/26/2006 was not considered. While the Office Action of 3/19/2007 did consider the Declaration, Examiner is restating the reasons below. The Declaration under 37 CFR 1.132 filed 12/26/2006 is insufficient to overcome the rejection of claim 1-3, 5-29 and 31-34 based upon Lehnert in view of Graves and Gill as set forth in the last Office action because: Applicant's evidence is not commensurate with the scope of the claims.

- a. Applicant does not claim a gypsum board with glass fiber facer mats that has properties of improved smoothness.
- b. Applicant presents evidence that the chopped fiber diameter of 11 +/- 1.5 produces a smoother finish board. The smoother finish is measured directing a light onto the face at a low angle of incidence. A camera captures an image that is analyzed with software to determine the average intensity across all the pixels in the image. The standard deviation of the intensity values from all the pixels is calculated. For each image a standard error is calculated by dividing the standard deviation of intensity by the average intensity. Applicant lists results in the table shown below.

Applicant claims an average fiber diameter of 11, yet there are two samples tested with the average fiber diameter of 11, Sample 2 which is the invention and Sample 4 which is not. Sample 2 is stated to be indicative of a smoother surface. Applicant has not shown the criticality of the claimed range as Sample 4 has the claimed fiber diameter yet not the claimed properties.

Examiner presumes, based on the data and the disclosure in the specification that the fiber length may be another critical variable, however fiber length is not claimed.

As the prior art reference to Gill, teaches an average fiber diameter of 10 microns which is in the claimed range, Applicant's evidence fails to present evidence of the prior art glass fiber mat compared to the invention.

In order for evidence to show unexpected results, the evidence must show the result is unexpected compared to the prior art of record, over the entire claimed range and/or the criticality of a claimed range.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

a. (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claim 31 rejected under 35 U.S.C. 102(b) as being anticipated by Gill et al (US 4,637,951). Claim 31 is directed to a use as a facer for a gypsum board. Statements of use do not distinguish the claims from the prior art. Gill teaches a fibrous mat that is a blend of glass fibers with a majority of base fibers and a minority of micro fibers that are bonded together with a resinous binder (ABST). The majority of base fibers are chopped glass fibers and have an average micron size of 10 microns which is in the claimed range of 11 +/- 1.5 micron (ABST, col. 3, lines 12-21). Gill teaches a second

type of fiber referred to as glass micro fiber that have an average diameter of one micron which is in the range of the claimed range of less than 5.5 micron. Gill teaches glass micro fibers that are staple fibers (col. 3, lines 45-46). The glass micro fibers comprise between 5% and 20% of the total weight of the blend (col. 2, lines 14-16). Gill teaches an acrylic latex binder (col. 3, lines 1-2).

Claim Rejections - 35 USC § 102/103

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

- b. (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

- (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claim 32 rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Gill (US 4,637,951). Gill

teaches a fibrous mat that is a blend of glass fibers with a majority of base fibers and a minority of micro fibers that are bonded together with a resinous binder (ABST). The majority of base fibers are chopped glass fibers and have an average micron size of 10 microns which is in the claimed range of 11 +/- 1.5 micron (ABST, col. 3, lines 12-21).

Gill teaches a second type of fiber referred to as glass micro fiber that have an average diameter of one micron which is in the range of the claimed range of less than 5.5 micron. Gill teaches glass micro fibers that are staple fibers (col. 3, lines 45-46). The glass micro fibers comprise between 5% and 20% of the total weight of the blend (col. 2, lines 14-16). Gill teaches an acrylic latex binder (col. 3, lines 1-2). Gill teaches the same structure and materials as the claimed invention and therefore it is presumed that the claimed property would be inherent to Gill. When the reference discloses all the limitations of a claim except a property or function, and the examiner cannot determine whether or not the reference inherently possesses properties which anticipate or render obvious the claimed invention the examiner has basis for shifting the burden of proof to applicant as in *In re Fitzgerald*, 619 F.2d 67, 205 USPQ 594 (CCPA 1980). See MPEP § 2112- 2112.02

Gill differs and teaches the permeability of no greater than 225 cubic feet per minute (ABST) and Applicant claims a permeability of greater than 250 cubic feet per minute at 0.5 inches of water. Gill tests the permeability at 5 inches of Miriam red oil (col. 5, lines 11-20). Comparing the two test measurements would result in a lower permeability at the lower manometer reading of 0.5 inches of water and therefore Gill's permeability would be lower than 225 cubic feet per minute. Gill teaches the minimum practical amount of microfibers which would impart to the glass mat a controlled degree of porosity ranged from about 2% to about 37% depending on fiber diameter. The greater microfiber percent results in a greater density and lower porosity material. Gill is teaching the degree of porosity can be controlled by the amount of microfibers and one

of ordinary skill in the art could have optimized the composition of microfibers to base fibers with a reasonable expectation of success in producing a mat with a higher permeability.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

4. **Claim 1-3, 5, 7, 9, 11-15, 17-18, 25, 28, 29, 31-34 rejected under 35 U.S.C. 103(a) as being unpatentable over Lehnert (US 4,647,496) in view of Graves (US 5,389,716) in further view of Gill (US 4,637,951).** *Lehnert teaches a fibrous mat-faced gypsum board comprised of a gypsum core that is sandwiched between two sheets of glass mat (ABST). Lehnert teaches a gypsum core that has one or more additives, which improves the water resistance of the gypsum core. Lehnert teaches glass fibrous mats of good porosity made from chopped fiber in a resinous binder (col.*

9, lines 5-38). *Lehnert teaches fibrous mats that are capable of forming a strong bond with the set gypsum. Lehnert teaches fibrous mats of materials such as mineral-type glass fibers and synthetic resin fibers that can be of continuous or discrete strands or fibers and can be woven or nonwoven form. Nonwoven mats such as chopped strand mat can be used. The preferred mat is a fiber glass mat comprising fiber glass filaments oriented in random pattern and bound together with a resin binder such as those known commercially as Dura-Glass by Manville (col. 9, lines 17-38). Lehnert teaches a resinous binder of "modified urea -formaldehyde" (col. 14, lines 35-37). Lehnert differs from the current application and does not teach the fiber sizes of the glass fibrous mats. Lehnert differs from the current application and does not teach a blend of fibers sizes.*

Graves teaches a fire resistant bonder for fibrous mats where the mats are comprised of glass fibers or mineral fibers (col. 2, lines 34-36). Graves teaches fibrous mats may be applied as backing layer to plywood, gypsum and other similar structural materials (col. 3, lines 32-35). Graves teaches fibers that can be formed into mats including glass fibers, mineral fibers, graphite fibers, metal fibers and organic fibers (col. 9, lines 24-35). Graves teaches glass fibers improve the structural foundation of the finished mat by increasing its tear resistance and tensile strength and improve the folding and working quality of the mat (col. 10, lines 4-50). Graves teaches fibers of varying sizes may be blended together to form the mat and by varying the length and diameter of the fibers the structural properties of the finished product can be altered. Graves teaches fiber sizes and teaches the fiber sizes and blends referring to Gill (col.

11, lines 11-33). A blend of base fibers and microfibers results in a mat that is more porous than mats produced by previously known methods and is better suited for use as a substrate for subsequently applied coatings such as a vinyl flooring.

Gill teaches a fibrous mat that is a blend of glass fibers with a majority of base fibers and a minority of micro fibers that are bonded together with a resinous binder (ABST). The majority of base fibers are chopped glass fibers and have an average micron size of 10 microns which is in the claimed range of 11 +/- 1.5 micron (ABST, col. 3, lines 12-21). Gill teaches a second type of fiber referred to as glass micro fiber that have an average diameter of one micron which is in the range of the claimed range of less than 5.5 micron. Gill teaches glass micro fibers that are staple fibers (col. 3, lines 45-46). The glass micro fibers comprise between 5% and 20% of the total weight of the blend (col. 2, lines 14-16).

It would have been obvious to one of ordinary skill in the art to employ the fiber sizes and fiber size blend compositions of Graves and Gill in the gypsum board facers of Lehnert, motivated to produce a gypsum board with porous fibrous facers.

As to claim 2 and 3, Lehnert does not teach chopped glass fibers selected from the group consisting of E glass, C glass, T glass, sodium borosilicate glass and mixtures thereof. Lehnert does not teach fine staple fibers are composed of C glass. Graves teaches the glass fibers are obtained from conventional "E" glass and derivatives thereof including "A" glass, "C" glass, "S" glass and "T" glass (col. 10, lines 4-11). Graves teaches the fibers are chopped glass fibers. It would have been obvious to one of ordinary skill in the art at the time the invention was made to employ the glass

fiber types of Graves in the fibrous mats facers of Lehnert motivated to produce a gypsum board with a strong structural foundation and with good tear resistance.

As to claim 5 and 7, Lehnert differs from the current application and does not teach the length of the glass fibers in the fibrous mats. Graves teaches chopped glass fibers that are about 1 mm to about 75 mm in length (col. 10, lines 16-19) and a preferred embodiment that the fibers are substantially uniform in length within the range of about 12 mm to 4 mm and preferably 19 mm in length. Gill teaches the chopped glass fibers have an average fiber length ranging from about ¼ to 1 inch, which is 6.4 to 25.4 mm and is in the range of 5 to 30 mm and 6 to 12 mm of the claimed invention. It would have been obvious to one of ordinary skill in the art at the time the invention was made to optimize the fiber length motivated by Graves and Gill fibrous glass mats for use as facers for gypsum structural board.

As to claim 9, Lehnert teaches chopped glass fibers (col. 9, lines 23-25). Lehnert differs and does not teach fine staple fibers. Graves and Gill teach fine staple fibers that are glass fibers.

As to claim 11, Lehnert differs and does not teach fine staple fibers are composed of C-glass. Graves teaches blends of fibers and staple fibers, as referenced to Gill. Grave teaches "C" glass fibers. It would have been obvious to one of ordinary skill in the art to employ a fine staple fiber produced of "C" glass motivated by Graves fibrous mat facers for use in structural gypsum board.

As to claims 12-14, Lehnert differs from the current application and does not teach fine staple fibers with the fiber diameter and length recited in claims 12-15. Gill

teaches the average micro fiber diameter is less than 1 micron and the average length range between 1/8 and 1/4 inch which is 3.2 to 6.4 mm and in the range of the claimed fine staple fibers (col. 3, lines 57-58).

As to claim 15, Lehnert differs from the current application and does not teach a blend of fiber sizes. Graves references Gill for teaching blends of fiber sizes and Gill teaches composition of the minor portion, (fine staple fibers), of 2-37%. Gill teaches the greater percentage of microfiber (fine staple fiber), the greater the density and the lower the porosity. It would have been obvious to employ the composition of fibers sizes motivated to optimize the porosity of the glass fibrous mat.

As to claim 17, Lehnert teaches a structure with a first and second facer comprising a fibrous mat.

As to claims 18, Lehnert teaches a resinous binder of "modified urea – formaldehyde" (col. 14, lines 35-37).

As to claims 25 and 28, Lehnert teaches gypsum sheathing and gypsum core of wallboard and building materials where the gypsum has many desirable characteristics such as fire-resistant properties and water resistance.

As to claim 32 and 34, Lehnert teaches a porous fibrous glass mat as a first and second facer. Lehnert differs from the current application and does not teach the air permeability of the mat. Graves references Gill and teaches that, the properties of the fibrous mat can be optimized through varying fiber blends in the mat, (col. 11, lines 10-26 of Graves). Gill discloses air permeability in the range of 180-220 cfm, however Gill does not disclose the permeability per square foot of mat and does not disclose the

permeability per test method ASTM D737 at 0.5 inches of water. Gill teaches that porosity can be optimized by the composition of microfibers and chopped fibers (col. 6, lines 10-22). Gill teaches that the porosity is measured by the Frazier Air Permeability test (col. 5, lines 10-25). It would have been obvious to one of ordinary skill in the art at the time the invention was made to optimize the blends of fibers of Gill motivated by Graves and Gill teachings to improve or obtain the desired porosity of the fiber mat facer on the gypsum board.

As to claim 33, Lehnert teaches Portland cement and poly(vinyl acetate), poly(vinyl chloride) and acrylic resins for use in the gypsum core that are effective additives to improve water resistance (col.10, lines 6-25). Portland cement is a hydraulic set material and meets the limitations of claim 33. Lehnert further teaches hydraulic set materials and teaches panels with cement based cores of hydraulic cement or Portland cements (col. 2, lines 38-57).

5. Claims 18-23 rejected under 35 U.S.C. 103(a) as being unpatentable over Lehnert (US 4,647,496) in view of Graves (US 5,389,716) and Gill (US 4,637,951) and in further view of Kajander et al. (US 2003/00332350). *Lehnert teaches a fibrous mat-faced gypsum board comprised of a gypsum core that is sandwiched between two sheets of glass mat (ABST). As to claim 18, Lehnert teaches a resinous binder of “modified urea –formaldehyde” (col. 14, lines 35-37). As to claim 19, Lehnert differs from the current application and does not teach a modified acrylic latex binder (claim 19). Lehnert differs from the current application and does not teach a resinous binder*

comprising a melamine formaldehyde cross-linker (claim 22) with a glass transition temperature between 15-45°C (claim 23) at a composition percentage of up to 10% and between 2-5% (claims 20 and 21).

Graves teaches a fire resistant bonder for fibrous mats where the mats are comprised of glass fibers or mineral fibers (col. 2, lines 34-36). Graves teaches typical binder systems for glass fibers include urea-formaldehyde, phenolic resins, bone glue, polyvinyl alcohols, acrylic resins and polyvinyl acetates. Graves teaches a binder composition comprising a stable mixture of a fire resistant latex preferably a halogenated latex polymer more preferably also carboxylated; an aqueous aldehyde condensation polymer-based thermosetting resin, preferably an urea-aldehyde thermosetting resin (col. 2, lines 35-40). A thermosetting resin is a crosslinking resin.

Kajander teaches foam coated nonwoven fibrous mat particularly suited for a facer on gypsum wallboards (ABST). Kajander teaches a mat primarily of glass fibers with a minor portion of resinous binder (ABST). As to claim 23, Kajander teaches conventional resinous binders of modified urea formaldehyde as well as a melamine formaldehyde, a latex containing mixture of cross linked vinyl chloride acrylate copolymer having a glass transition temperature as high as about 113°F (45°C) and preferably about 97°F (36°C) and a small amount of stearylated melamine [0012]. As to claims 20 and 21, Kajander teaches about 5% cross-linking agent [0045].

It would have been obvious to one of ordinary skill in the art at the time the invention was made to employ a thermosetting, crosslinking binder in the fibrous glass mat of Lehnert motivated to improve the properties of the bond mat and gypsum board.

It further would have been obvious to employ a binder with a relatively high glass transition temperature of Kajander motivated to improve the heat resistance of the gypsum board. It would have been obvious to employ a crosslinking agent of the amount of 2 to 5 to 10% motivated to optimize the glass transition temperature of the binder.

6. Claims 16 and 25-28 rejected under 35 U.S.C. 103(a) as being unpatentable over Lehnert (US 4,647,496) in view of Graves (US 5,389,716) and Gill (US 4,637,951) in further view of Carbo (US 2004/0209071). *Lehnert teaches a fibrous mat-faced gypsum board comprised of a gypsum core that is sandwiched between two sheets of glass mat (ABST). Lehnert teaches gypsum sheathing and gypsum core of wallboard and building materials where the gypsum has many desirable characteristics such as fire-resistant properties and water resistance. Lehnert teaches conventional gypsum wallboard that is covered with paper sheets and Lehnert teaches the disadvantages of water seepage through paper. Lehnert teaches that paper facers were known in the art in the art at the time the invention was made. Paper facers are considered inclusive of Kraft paper. Lehnert differs from the current application and does not teach reinforcing fiber and does not teach a biocide in the gypsum core.*

Carbo teaches a mold resistant acoustical panel, ceiling tile and wall materials. Carbo teaches gypsum is a preferred material in the panel because it provides surface hardness and fire resistance [0021]. Carbo teaches fillers including reinforcing fibers that are cellulosic and fibers of mineral wool [0023]. Carbo teaches an antimicrobial

agent or biocide such as zinc pyrthione can be added to the gypsum panel core [0027] and [0029].

*It would have been obvious to one of ordinary skill in the art at the time the invention was made to employ reinforcing fibers and a biocide in the gypsum core of the building material of Lehnert motivated to produce a building material that is resistant to mold and stronger. It further would have been obvious to employ a gypsum core that is fire resistant as taught by Carbo. When the reference discloses all the limitations of a claim except a property or function, and the examiner cannot determine whether or not the reference inherently possesses properties which anticipate or render obvious the claimed invention the examiner has basis for shifting the burden of proof to applicant as in *In re Fitzgerald*, 619 F.2d 67, 205 USPQ 594 (CCPA 1980). See MPEP § § 2112-2112.02.*

Response to Arguments

7. Applicant's arguments filed 2/11/2009 have been fully considered but they are not persuasive. Applicants argue that the results of combining a single average diameter of chopped glass fibers with a fiber diameter of 11 +/- 1.5 micron and a minor portion of fine staple fibers having an average fibers diameter of less than about 5.5 micron surprisingly and unexpectedly produce a gypsum faced board that is smoother than other glass mat faced gypsum boards. Applicant states that the Office fails to take any cognizance of applications Declaration under 37 CFR 1.132 submitted 12/26/2006.

The Office Action reply to the declaration stated that Applicant's evidence is not commensurate with the scope of the claims. Examiner responded to the Declaration in more detail in this Office Action.

Applicant's Declaration submitted 12/26/2006 presented evidence varying the fiber diameter and fiber length of the chopped glass fibers with respect to the smoothness. Sample #2 (the invention) and Sample #4 have the same average fiber diameter as claimed. Sample #2 has the desired smoothness, Sample #4 does not. It appears that the fiber length is critical to the success of the invention. The fiber length is not claimed. Applicant did not show that the fiber diameter alone produces the smoother surface. Applicant is arguing that the combination of the 11 micron diameter fibers with a minor portion 1-30% fibers of less than 5 micron size produces the smoother surface. However the data does not support this limitation.

Based on the limited evidence available and the disclosure in the specification it appears that a significant variable is the length of the chopped glass fibers that are 11 micron in diameter. Gill teaches a fiber with lengths of 6 mm to 25.4 mm (col. 3, lines 7-26 of Gill). Gill does not teach the criticality of the length of the fiber. Gill does not teach a high permeable mat. Gill does not teach smoothness. Gill alone anticipates the fiber mat of claims 31 and claim 32 is obvious over Gill. Examiner concludes that that the fibrous facer of independent claims 1, 29, 31, 32 and 33 is the fibrous mat of Gill. So one of ordinary skill in the art could have combined the known mat with the gypsum board and the results of the combination would have been successful in producing a smoother and high permeable fiber mat.

Examiner recognizes that the references either alone or in combination do not teach a smooth surface gypsum board with glass fiber mat facers. However, as Gill's fibrous mat anticipates the fibrous mat of independent claims 1, 29, 31 and 33, the property of smoothness, if claimed, would be inherent to the structure.

8. Applicant's arguments are not persuasive. Applicant argues that Lehnert discloses gypsum that penetrates part way and substantially through the thickness of the mat and this is necessary to be permeable to allow the high water content of the gypsum slurry to be extracted as liquid or vapor during the production of the board. Lehnert does not disclose the claimed fiber sizes.

Graves is relied upon for teaching a glass fiber mat for use in construction boards. Applicant argues that Graves is directed to a glass fiber mat that is fire resistant. Graves cites Gill for types of mats that employ blends of fibers sizes.

Applicant argues that Gill is used for an entirely different purpose than Applicant's mat. The Gill mat is useful for employing curable thermoset or as a carrier web in the vinyl flooring where the mat is resistant to strikethrough. Applicant argues that the need for relatively high permeability would lead a skilled artisan away from combining with Gill which does not teach a gypsum board and also teaches avoidance of strikethrough, an objective diametrically opposed to the level porosity needed for gypsum board fabrication. Nevertheless, based on the structural limitations in Applicant's claims, the glass fiber mat of Gill encompasses and anticipates the fiber mat of the independent claims.

Applicant argues that the Lehnert gypsum material require at least some amount of strikethrough to achieve the preferred structure. Applicant has not claimed there is strikethrough or penetration of the gypsum into the glass fiber mat. In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., strikethrough or penetration of gypsum) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

While the glass fiber mat of Lehnert allows for penetration and the glass fiber mat of Gill does not allow for strikethrough, this feature does not overcome the fact that Lehnert teaches a glass fiber faced gypsum board and Gill teaches the claimed glass fiber mat. Further, Applicant argues that there is no reference to gypsum in the disclosure of Gill. And Gill recognizes the control of porosity as a conventional means of limiting strikethrough. Applicant argues that Gill expressly creates an aversion for using any fiber configuration taught in a mat used in examples in which some degree of penetration of the faced matrix is important, such as a gypsum board. However, the fiber sizes taught by Gill anticipate the claimed invention. It is not clear if the claimed mat is different from Gill. The claims and the specification do not teach whether or not strikethrough is related to the claimed invention.

A prior art reference must be considered in its entirety, i.e., as a whole, including portions that would lead away from the claimed invention. *W.L. Gore & Associates, Inc. v. Garlock, Inc.*, 721 F.2d 1540, 220 USPQ 303 (Fed. Cir. 1983), cert. denied, 469 U.S.

851 (1984). "The prior art's mere disclosure of more than one alternative does not constitute a teaching away from any of these alternatives because such disclosure does not criticize, discredit, or otherwise discourage the solution claimed...." In re Fulton, 391 F.3d 1195, 1201, 73 USPQ2d 1141, 1146 (Fed. Cir. 2004). >See also MPEP §2123. Applicant is arguing that Gill would teach away from Lehnert. The context of entirety is based on the references compared to the claimed invention. The claimed invention is not teaching or claiming whether strikethrough is an important property.

Therefore Gill teaches a glass fiber mat and one of ordinary skill in the art could have tried the glass fiber mat of Gill as one of the possible known solutions with a reasonable expectation of success. With respect to Applicant's arguments that there is no suggestion of motivation to combine, the rationale to modify or combine the prior art does not have to be expressly stated in the prior art; the rationale may be expressly or impliedly contained in the prior art or it may be reasoned from knowledge generally available to one of ordinary skill in the art, established scientific principles, or legal precedent established by prior case law. In re Fine, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988); In re Jones, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992).

Applicant argues that it is hindsight reconstruction based on Applicant's own disclosure as a template. In response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made,

and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971). At the time the invention was made there were a number of finite solutions, or glass fiber mats, known in the art. Among the finite solutions were Lehnert, Graves and Gill. It would have been obvious to try one of the known solutions.

9. Applicant argues that were the Gill teaching to be modified to provide a mat having applicant's increased permeability, it would be highly likely not to attain the objective of inhibiting strikethrough. Such a result is submitted to preclude the reconstruction proposed by the Examiner. Applicant cites *Monarch Knitting Machine Corp. v. Sulzer Morate GmbH* "A prior art reference may be considered to teach away when "a person of ordinary skill, upon reading the reference would be discouraged from following the path that was taken by the applicant". The arguments are directed to the property of reduced strikethrough taught by Gill and penetration taught by Lehnert. As noted above, neither of these properties or the resulting structure has been claimed by the Applicant. Therefore the arguments are moot. If Applicant amended the claims to state that there is a level of penetration of the gypsum into the fiber mat, this would overcome the reference to Gill.

Applicant teaches in the specification that "the invention produces a mat-faced gypsum board having one or more smoother surface, a stronger internal bond to prevent delamination of the face when subjected to prolonged wetness after installation, a surface requiring less paint to produce an aesthetically acceptable

finished wall, ceiling, or the like and better flame and mold resistance". (page 6, lines 1-5).

Examiner has not modified or reconstructed Gill or Lehnert. The limitations of the claims 1, 29, 31 and 33 are encompassed and anticipated by Gill. As claim 32 and dependent claim 34 claim a higher air permeability than Gill, Examiner has stated that Gill teaches the porosity, which is relative to the permeability, can be controlled by fiber size and wetting resistance of the resin. If the structures of Gill and the Applicant are the same then one of ordinary skill in the art would presume that the properties are the same. As Applicant is claiming a higher permeability, the claims are lacking the structural limitations that differentiate Gill from the current Application.

10. Applicant argues that Graves does not remedy the deficiencies of Gill and Lehnert. Graves is cited for relevance to fire resistance. Examiner also relies upon Graves as being directed to a glass fiber mat for a construction board, such as gypsum and Graves cites Gill. Graves leads one of ordinary skill in the art to Gill as a possible solution. Applicant's arguments are not persuasive.

11. Applicant argues that Examiner has contended that it would have been obvious to optimize the fiber blends of Gill to improve or obtain the desired porosity of the gypsum board. Applicant corrects this statement in that it is the porosity of the facer mat and not the gypsum board. Examiner has changed the Office Action to reflect this distinction.

Applicant argues that the factors believed in the prior art to contribute to a smooth hand for the facer mat run counter to the factors needed to obtain good porosity. Applicant is arguing properties that are not claimed. Applicant has not claimed the properties of smoothness. Applicant has not claimed porosity in independent claims 1, 29, 31 and 33. Applicant has not claimed a structure of a glass fiber mat that is different from prior art, namely to Gill. If Applicant amends the claims and provides support for the amendment and the unexpected result of the combination of smoothness, porosity as well as structural differences, the Applicant could overcome the rejection and the claims would be in condition for allowance.

Examiner agrees that based on the disclosure in the specification and the Declaration evidence, that the glass fiber facers in combination with a gypsum core produce a smoother finish. However the structure and desired property is not claimed. In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., smoothness) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Examiner agrees that the higher permeability of the glass fiber mat may be an unexpected result obtained by a specific combination of fiber sizes and resinous binder compositions, however, as claimed, the prior art references teach that these are known compositions and blends of fibers sizes.

The claims must recite the structural differences from the prior art in order to overcome the prior art rejection and combination of references. In order for an obviousness rejection to be withdrawn and claims allowed over the rejection, the evidence must be unexpected and the evidence must be commensurate in scope with the claims. Applicant has failed to meet this burden of proof. If Applicant can amend the claims to distinguish the invention from Gill and to show that the results are unexpected and not inherent to the fibrous mat of Gill, the claims could be allowed. It appears that the fiber length is a critical structural limitation that is not taught in the prior art. While Gill's invention encompasses the claimed fiber length, the Declaration evidence as well as the specification teach that 12 mm length produces the desired smoothness while the 19 mm length does not. If the fiber length is critical, the criticality of the claim range could overcome the prior art.

12. Applicant argues that the reference to Hannes does not teach the claimed fiber sizes. Examiner agrees that Hannes does not teach the claimed fiber sizes and has withdrawn the reference to Hannes.

13. Applicant argues the rejection of claims 18-23 over Lehnert, Graves, Gill and Kajander in that Kajander does not teach the claimed fiber sizes and blend of fiber sizes. Kajander is relied upon for teaching the binder components are known in the art to be employed in a glass fiber mat and that one of ordinary skill in the art could have selected the known composition with a reasonable expectation of success.

14. Applicant argues the rejection of claims 18-23 over Lehnert, Graves, Gill and Carbo in that Carbo does not teach the claimed fiber sizes and blend of fiber sizes. Carbo is relied upon for teaching the binder components that inhibit the growth of molds and fungus are known in the art to be employed in construction boards and that one of ordinary skill in the art could have selected the known composition with a reasonable expectation of success.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JENNIFER STEELE whose telephone number is (571)272-7115. The examiner can normally be reached on Office Hours Mon-Fri 8AM-5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rena Dye can be reached on (571) 272-3186. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/J. S./
Examiner, Art Unit 1794
12/14/2009

/Rena L. Dye/
Supervisory Patent Examiner, Art Unit 1794